

FACT SHEET FOR NPDES PERMIT WA0039748
PUYALLUP HATCHERY

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INTRODUCTION

The Federal Clean Water Act (FCWA, 1972, and later modifications, 1977, 1981, and 1987) established water quality goals for the navigable (surface) waters of the United States. One of the mechanisms for achieving the goals of the Clean Water Act is through National Pollutant Discharge Elimination System (NPDES) permits, which is administered by the Environmental Protection Agency (EPA). The EPA has authorized the state of Washington to administer the NPDES permit program. Chapter 90.48 Revised Code of Washington (RCW) defines the Department of Ecology's (Department) authority and obligations in administering the wastewater discharge permit program.

The regulations adopted by the State include procedures for issuing permits [Chapter 173-220 Washington Administrative Code (WAC)], definitions of the water quality criteria for surface and ground waters (Chapters 173-201A and 200 WAC), and definitions for sediment management standards (Chapter 173-204 WAC). These regulations require that a permit be issued before discharge of wastewater to waters of the state is allowed. The regulations also establish the basis for effluent limitations and other requirements which are to be included in the permit. One of the requirements (WAC 173-220-060) for issuing a permit under the NPDES permit program is the preparation of a draft permit and an accompanying fact sheet. Public notice of the availability of the draft permit is required at least thirty days before the permit is issued (WAC 173-220-050). The fact sheet and draft permit are available for review (see Appendix B--Public Involvement of the fact sheet for more detail on the Public Notice procedures).

The fact sheet and draft permit have been reviewed by the Permittee. Errors and omissions identified in this review have been corrected before going to public notice. After the public comment period has closed, the Department will summarize the substantive comments and the response to each comment. The summary and response to comments will become part of the file on the permit and parties submitting comments will receive a copy of the Department's response. The fact sheet will not be revised. Comments and the resultant changes to the permit will be summarized in Appendix E--Response to Comments.

<u>GENERAL INFORMATION</u>	
Applicant	Washington State Department of Fish & Wildlife 600 Capitol Way North Olympia, WA 98501-1091
Facility Name and Address	Puyallup Hatchery 1416 14 th Street SW Puyallup, WA 98371
Type of Facility	Upland Fin-Fish Rearing
SIC Codes	0921 – Fish Hatcheries and Preserves
Discharge Locations	Outfall No. 1 (NAD 1983 datum) Clarks Creek Latitude: 47° 10' 40" N Longitude: 122° 18' 57" W Outfall No. 2 (NAD 1983 datum) Clarks Creek (via hatchery ditch) Latitude: 47° 10' 43" N Longitude: 122° 19' 00" W
Water Body ID Number	WA-10-1025



Figure 1. Vicinity Map.

BACKGROUND INFORMATION

DESCRIPTION OF THE FACILITY

HISTORY

This facility is a state of Washington Department of Fish and Wildlife fish hatchery which raises Rainbow trout, Brown trout and Steelhead trout to enhance the surrounding area's lake stocking program. The facility was built in 1947 and was originally issued an Upland Fin-Fish Hatching and Rearing NPDES General Permit in 1990. The general permit was most recently re-issued on April 22, 2005.

The general permit for this facility has been converted to an individual NPDES permit in order to implement the recommendations contained in the approved **Puyallup River Total Maximum Daily Load for Biochemical Oxygen Demand, Ammonia, and Residual Chlorine**.

INDUSTRIAL PROCESS

The Puyallup Hatchery is comprised of 16 round ponds, 8 center raceways, 2 dirt raceways, 6 creek ponds, 1 rearing pond, and 2 abatement ponds (see figure 2). The influent source is entirely groundwater fed and is from Maplewood Springs. All flow is eventually discharged into Clarks Creek through Outfalls 001 and 002. Figures 2 and 3 provide schematic flow diagrams of the rearing and hatching processes.

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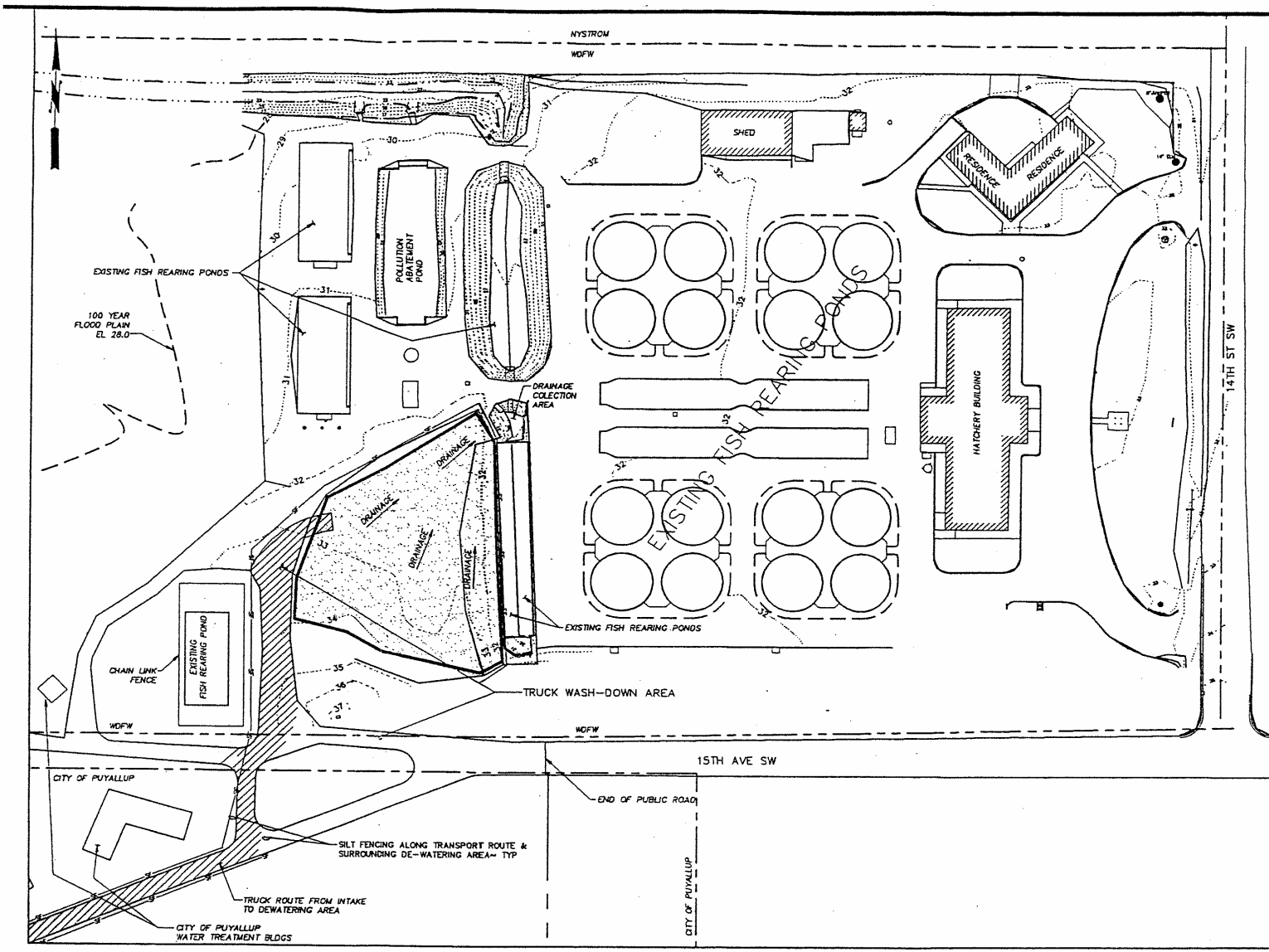


FIGURE 2. SITE PLAN.

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The facility's discharge to Clarks Creek (Outfalls 001 and 002 combined) has a long-term average of approximately 7.6 million gallons per day, 8.9 million gallons per day on a maximum monthly average and a maximum daily flow of 8.9 million gallons per day.

The facility produced a maximum of 80,450 pounds/year of Rainbow trout, approximately 6,000 pounds/year of Brown trout, and approximately 5,000 pounds/year of Steelhead trout. The facility's highest demand for amount of feed required for sustenance is during the month of February where approximately 16,780 pounds of feed are consumed. Typically, the facility uses Romet 30 (1.67 gm/lb of feed), Formalin (37 percent formaldehyde), buffered Iodophore (1 percent), MS-222, chlorine (12.5 percent), hydrogen peroxide (35 percent), potassium permanganate, and Florfenicol for disease control.

DISCHARGE OUTFALL

Outfall #1: Overflow drainage from rearing pond. Approximately 50 feet from pond to discharge through a 15-inch concrete pipe into Clarks creek.

Outfall #2: Drainage from hatchery ponds, troughs, raceways from two 24-inch metal pipes into ditch. Ditch is approximately 500 feet in length to joining Clarks Creek.

PERMIT STATUS

The previous permit for this facility was an upland fin-fish hatching and rearing general permit which was issued on April 17, 2000. The previous permit placed effluent limitations on rearing pond or raceway discharge of net settleable solids (monthly average and instantaneous maximum) and net total suspended solids (monthly average and instantaneous maximum); offline settling basin discharge of settleable solids (instantaneous maximum) and total suspended solids (instantaneous maximum); rearing pond or raceway drawdown for release discharge of settleable solids (instantaneous maximum) and total suspended solids (instantaneous maximum); and rearing vessel disinfection water discharge of total chlorine residual (instantaneous maximum).

An application for permit renewal was submitted to the Department on November 23, 2004, and accepted by the Department on December 15, 2004.

SUMMARY OF COMPLIANCE WITH THE PREVIOUS PERMIT

The facility last received an inspection on March 9, 2005.

During the history of the previous permit, the Permittee has remained in compliance based on Discharge Monitoring Reports (DMRs) submitted to the Department.

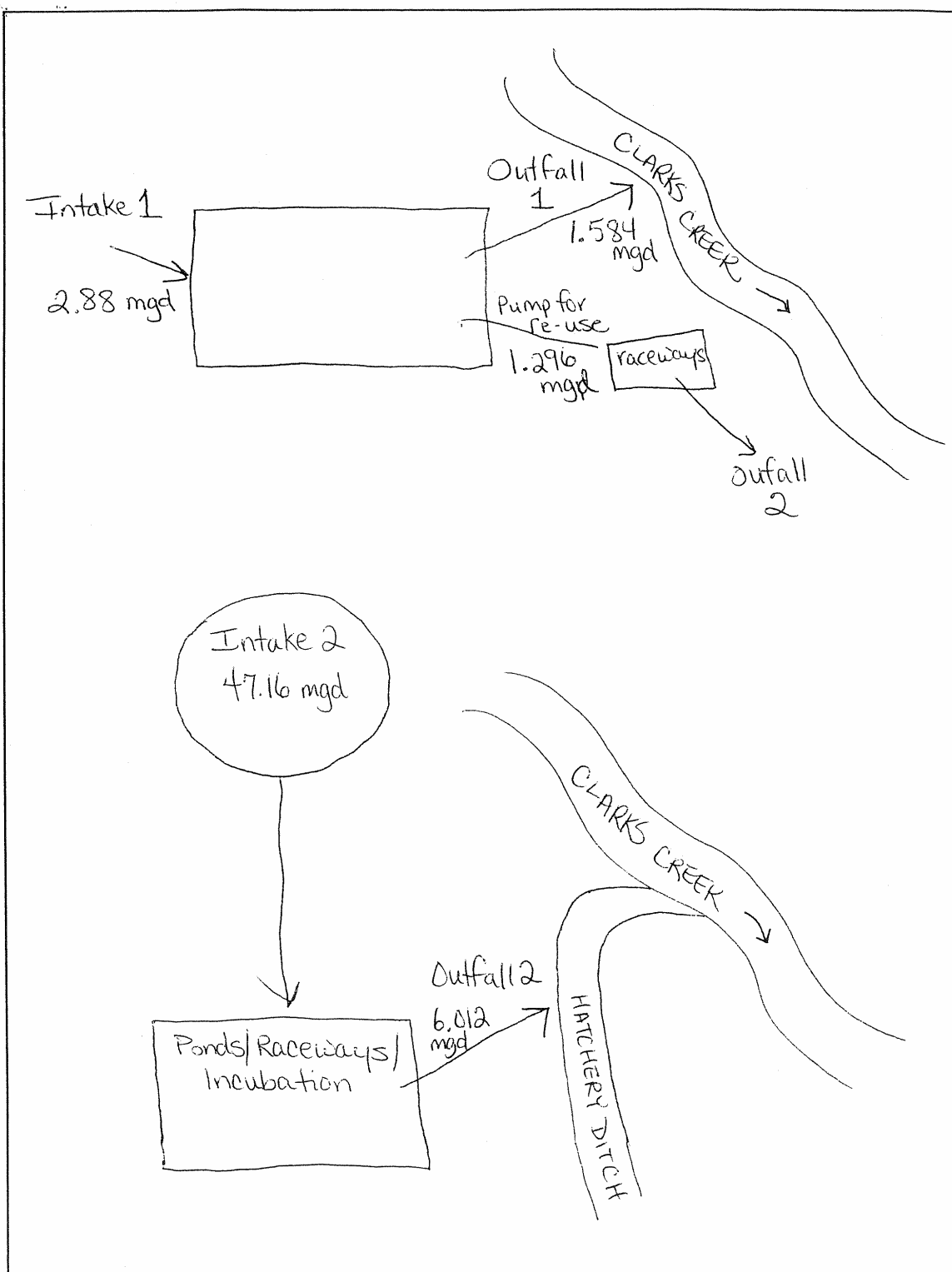


Figure 2. Puyallup Hatchery Schematic Flow Diagrams.

WASTEWATER CHARACTERIZATION

The proposed wastewater discharge is characterized for the regulated parameters as shown in Table 1 (below). The values shown are the average values submitted to the Department as part of the facility's discharge monitoring reports from July 2000 through December 2004.

Table 1. Wastewater Characterization.

Parameter	Monthly Average	Maximum Daily
<i>Influent</i>		
Flowrate (MGD)	7.33	
<i>Rearing Pond or Raceway Discharge</i>		
Net Settleable Solids (ml/L)	0.05	
Net Total Suspended Solids (mg/L)	0.24	0.27
<i>Offline Settling Basin Discharge</i>		
Flowrate (gpd)	3525	
Settleable Solids (ml/L)		0.05
Total Suspended Solids (mg/L)		15.0
<i>Rearing Pond or Raceway Drawdown for Release Discharge</i>		
Settleable Solids (ml/L)		No Activity Reported
Total Suspended Solids (mg/L)		No Activity Reported
<i>Rearing Vessel Disinfection Water</i>		
Total Residual Chlorine (µg/L)		No Activity Reported

SEPA COMPLIANCE

This is an existing facility and is therefore not subject to State Environmental Policy Act (SEPA) requirements.

PROPOSED PERMIT LIMITATIONS

Federal and state regulations require that effluent limitations set forth in a NPDES permit must be either technology- or water quality-based. Technology-based limitations are based upon the treatment methods available to treat specific pollutants. Technology-based limitations are set by regulation or developed on a case-by-case basis (40 CFR 125.3, and Chapter 173-220 WAC). Water quality-based limitations are based upon compliance with the Surface Water Quality Standards (Chapter 173-201A WAC), Ground Water Standards (Chapter 173-200 WAC), Sediment Quality Standards (Chapter 173-204 WAC) or the National Toxics Rule (Federal Register, Volume 57, No. 246, Tuesday, December 22, 1992). The more

stringent of these two limits must be chosen for each of the parameters of concern. Each of these types of limits is described in more detail below.

The limits in this permit are based in part on information received in the application. The effluent constituents in the application were evaluated on a technology- and water quality-basis. The limits necessary to meet the rules and regulations of the state of Washington were determined and included in this permit. The Department does not develop effluent limits for all pollutants that may be reported on the application as present in the effluent. Some pollutants are not treatable at the concentrations reported, are not controllable at the source, are not listed in regulation, and do not have a reasonable potential to cause a water quality violation. Effluent limits are not always developed for pollutants that may be in the discharge but not reported as present in the application. In those circumstances the permit does not authorize discharge of the non-reported pollutants. Effluent discharge conditions may change from the conditions reported in the permit application. If significant changes occur in any constituent, as described in 40 CFR 122.42(a), the Permittee is required to notify the Department. The Permittee may be in violation of the permit until the permit is modified to reflect additional discharge of pollutants.

TECHNOLOGY-BASED EFFLUENT LIMITATIONS

The Technology-based effluent limitations are dictated by federal law (Title 40 CFR Part 451 – Concentrated Aquatic Animal Production Point Source Category) and by State law (requirements to meet AKART in WAC173-201A). 40 CFR Part 451 requires that investigational new animal drugs (INADs) be reported and a best management practices (BMPs) plan be developed and maintained on site. There are also a few requirements which need to be met in order to meet the EPA's definition for best practicable control technology currently available (BPT), best available technology economically achievable (BAT), and best conventional technology (BCT). These elements are listed as follows:

- Solids Control
- Material Storage
- Structural Maintenance
- Recordkeeping
- Training

These elements have been addressed in the previous Upland Fin-Fish Hatching and Rearing NPDES Waste Discharge General Permit and these relevant permit requirements have been retained in this permit.

Technology-based effluent limitations have also been established for this industry through the adoption of Chapter 173-221A WAC. This regulation contains both wastewater discharge standards and design criteria for wastewater treatment systems. This permit contains the same effluent limitations which have been adopted for this industry (Chapter 173-221A WAC).

This permit requires the Permittee to review their pollution prevention plan within six months of when this permit goes into effect and update the plan whenever necessary. The review, implementation, and updating of the pollution prevention plan will provide further reductions in the amount of solids discharged, prevent spills, and have procedures developed for responding to a spill.

This permit includes a prohibition on the discharge of Atlantic salmon into freshwater surface waters of the State. This prohibition was based in part on the May 1997 Pollution Control Hearings Board ruling that Atlantic salmon are a biological pollutant. Additionally, it is known that juvenile Atlantic salmon have been trapped by the Department of Fish and Wildlife in both Scatter Creek and the Chehalis River

downstream of permitted upland fin-fish hatching and rearing facilities raising Atlantic salmon. The Department of Fish and Wildlife has expressed concerns to the Department that Atlantic salmon fry and juvenile fish may cause ecological disruption if released to freshwater. The technology available to eliminate the inadvertent release of Atlantic salmon is screening the facility effluent. Screening is relatively inexpensive and commercially available. The Department believes that a precautionary stance in regards to the inadvertent release of Atlantic salmon is a reasonable step to prevent the establishment of this exotic species in our State waters. This new requirement imposed upon the industry only impacts a few permitted facilities statewide. It should be noted that WAC 232-12-271 also prohibits the release of exotic species into the State without a permit from the Director of the Washington State Department of Fish and Wildlife.

SURFACE WATER QUALITY-BASED EFFLUENT LIMITATIONS

In order to protect existing water quality and preserve the designated beneficial uses of Washington's surface waters, WAC 173-201A-060 states that waste discharge permits shall be conditioned such that the discharge will meet established Surface Water Quality Standards. The Washington State Surface Water Quality Standards (Chapter 173-201A WAC) is a state regulation designed to protect the beneficial uses of the surface waters of the state. Surface water quality-based effluent limitations may be based on an individual waste load allocation (WLA) or on a WLA developed during a basin wide total maximum daily loading study (TMDL).

NUMERICAL CRITERIA FOR THE PROTECTION OF AQUATIC LIFE

"Numerical" water quality criteria are numerical values set forth in the state of Washington's Water Quality Standards for Surface Waters (Chapter 173-201A WAC). They specify the levels of pollutants allowed in a receiving water while remaining protective of aquatic life. Numerical criteria set forth in the Water Quality Standards are used along with chemical and physical data for the wastewater and receiving water to derive the effluent limits in the discharge permit. When surface water quality-based limits are more stringent or potentially more stringent than technology-based limitations, they must be used in a permit.

NUMERICAL CRITERIA FOR THE PROTECTION OF HUMAN HEALTH

The U.S. EPA has promulgated 91 numeric water quality criteria for the protection of human health that are applicable to Washington State (EPA 1992). These criteria are designed to protect humans from cancer and other disease and are primarily applicable to fish and shellfish consumption and drinking water from surface waters.

NARRATIVE CRITERIA

In addition to numerical criteria, "narrative" water quality criteria (WAC 173-201A-030) limit toxic, radioactive, or deleterious material concentrations below those which have the potential to adversely affect characteristic water uses, cause acute or chronic toxicity to biota, impair aesthetic values, or adversely affect human health. Narrative criteria protect the specific beneficial uses of all fresh (WAC 173-201A-130) and marine (WAC 173-201A-140) waters in the state of Washington.

ANTIDegradATION

The state of Washington's Antidegradation Policy requires that discharges into a receiving water shall not further degrade the existing water quality of the water body. In cases where the natural conditions of a receiving water are of lower quality than the criteria assigned, the natural conditions shall constitute the water quality criteria. Similarly, when the natural conditions of a receiving water are of higher quality

than the criteria assigned, the natural conditions shall be protected. More information on the State Antidegradation Policy can be obtained by referring to WAC 173-201A-070.

The Department has reviewed existing records and is unable to determine if ambient water quality is either higher or lower than the designated classification criteria given in Chapter 173-201A WAC; therefore, the Department will use the designated classification criteria for this water body in the proposed permit. The discharges authorized by this permit should not cause a loss of beneficial uses. There is some data available which resulted in Clarks Creek to be placed in Category 5 – Requires a TMDL in the 2002/2004 303(d) list for pH in the vicinity of, and downstream of, the facility. This permit places pH limitations and requires influent and effluent monitoring for pH.

The 2002/2004 303(d) list also includes the reach of Clarks Creek as it enters into the Puyallup River. This portion of Clarks Creek is listed in Category 5 – Requires a TMDL for fecal coliform and Category 2 – Waters of Concern for dissolved oxygen. There is no reason to suspect this facility to be a substantial contributor of fecal coliform. Therefore, it is assumed that this facility is not impacted by the Category 5 listing of fecal coliform. The Category 2 listing for dissolved oxygen is assumed to be addressed, for this facility, as part of the Puyallup River TMDL. This permit implements the recommendations contained in the Puyallup River TMDL.

CRITICAL CONDITIONS

Surface water quality-based limits are derived for the waterbody's critical condition, which represents the receiving water and waste discharge condition with the highest potential for adverse impact on the aquatic biota, human health, and existing or characteristic water body uses.

MIXING ZONES

The Water Quality Standards allow the Department to authorize mixing zones around a point of discharge in establishing surface water quality-based effluent limits. Both "acute" and "chronic" mixing zones may be authorized for pollutants that can have a toxic effect on the aquatic environment near the point of discharge. The concentration of pollutants at the boundary of these mixing zones may not exceed the numerical criteria for that type of zone. Mixing zones can only be authorized for discharges that are receiving all known, available, and reasonable methods of prevention, control and treatment (AKART) and in accordance with other mixing zone requirements of WAC 173-201A-100.

The National Toxics Rule (EPA, 1992) allows the chronic mixing zone to be used to meet human health criteria.

DESCRIPTION OF THE RECEIVING WATER

The facility discharges to Clarks Creek which is designated as a Class A receiving water in the vicinity of the outfall. Characteristic uses include the following:

water supply (domestic, industrial, agricultural); stock watering; fish migration; fish rearing, spawning and harvesting; wildlife habitat; primary contact recreation; sport fishing; boating and aesthetic enjoyment; commerce and navigation. Water quality of this class shall meet or exceed the requirements for all or substantially all uses.

SURFACE WATER QUALITY CRITERIA

Applicable criteria are defined in Chapter 173-201A WAC for aquatic biota. In addition, U.S. EPA has promulgated human health criteria for toxic pollutants (EPA 1992). Criteria for this discharge are summarized in Table 2, below:

Table 2. Applicable Water Quality Criteria.

Fecal Coliform	100 organisms/100 mL maximum geometric mean
Dissolved Oxygen	8.0 mg/L minimum
Temperature	18.0 degrees Celsius maximum or incremental increases above background
pH	6.5 to 8.5 standard units
Turbidity	less than 5 NTU above background
Toxics	No toxics in toxic amounts

Clarks Creek, in the vicinity of, and downstream of, the hatchery's discharge is listed as Category 5 – Requires a TMDL in the 2002/2004 303(d) list for pH. Further downstream, where Clarks Creek flows into the Puyallup River, the waters are listed as Category 5 – Requires a TMDL for fecal coliform, and Category 2 Waters of Concern for dissolved oxygen in the 2002/2004 303(d) list. As a result, pH limitations have been placed in the permit. Fecal coliform is not a parameter of concern for this facility and the dissolved oxygen concerns for this facility have been evaluated as part of the Puyallup River TMDL for BOD, ammonia, and residual chlorine study (June 1993, as revised). This permit complies with the recommendations provided in the Puyallup River TMDL.

CONSIDERATION OF SURFACE WATER QUALITY-BASED LIMITS FOR NUMERIC CRITERIA

Pollutants in an effluent may affect the aquatic environment near the point of discharge (near field) or at a considerable distance from the point of discharge (far field). Toxic pollutants, for example, are near-field pollutants--their adverse effects diminish rapidly with mixing in the receiving water. Conversely, a pollutant such as BOD is a far-field pollutant whose adverse effect occurs away from the discharge even after dilution has occurred. Thus, the method of calculating surface water quality-based effluent limits varies with the point at which the pollutant has its maximum effect.

The derivation of surface water quality-based limits also takes into account the variability of the pollutant concentrations in both the effluent and the receiving water.

The critical condition for Clarks Creek in the vicinity of the facility's discharge occurs during the calendar months of May through October. This time period has been designated in the Puyallup River TMDL Report and its consequent addendum in 1994. As noted in the addendum, water quality standards for dissolved oxygen and ammonia during November through April are expected to be adequately protected by application of policies in the Department's Permit Writer's Manual regarding mixing zones and technology-based limits.

The total WLA (for both Outfalls 001 and 002) for this facility is 213.2 lbs/day for five-day BOD, and 26.7 lbs/day for ammonia. The TMDL Study used intensive modeling using the Water Quality Analysis Simulation Program (WASP) model. The TMDL Study allows trading of the ammonia WLA for additional BOD₅ WLA at a ratio of 13.4 lbs/day of BOD₅ for 1 lb/day of ammonia. The WLAs recommended in the TMDL study have been adopted in this permit and are used to define limitations on the water quality of the discharge. The Permittee may request to interchangeably exchange between the WLAs granted to the Permittee for ammonia and BOD₅. The Permittee shall request such a trade at least 90 days before such a trade will go into effect. The Department will review the request and modify this NPDES permit as necessary.

A period of two years is provided to properly assess whether or not an adjustment to the BOD₅ and ammonia limits will be needed. In the interim period an equivalent oxygen demand limit has been established. The equivalent oxygen demand is defined as the sum of the BOD₅ discharged with the amount of ammonia discharged multiplied by the 13.4 conversion factor.

Toxic Pollutants--Federal regulations (40 CFR 122.44) require NPDES permits to contain effluent limits for toxic chemicals in an effluent whenever there is a reasonable potential for those chemicals to exceed the surface water quality criteria. This process occurs concurrently with the derivation of technology-based effluent limits. Facilities with technology-based effluent limits defined in regulation are not exempt from meeting the Water Quality Standards for Surface Waters or from having surface water quality-based effluent limits. Water quality evaluations were done for ammonia which showed there is no reasonable potential to exceed ammonia water quality criteria (please refer to Appendix D for a print out of the calculation spreadsheets).

Some of the disease control chemicals used at the facility may be classified as toxic pollutants. The Department has determined that when these chemicals are used according to US Food and Drug Administration (FDA) requirements, they pose no reasonable potential to violate federal or State water quality standards

Disease Control Chemicals—The disease control chemicals used at this facility are administered for the internal and external control of fish diseases and also to disinfect facility tools, rearing ponds, or source waters to prevent the spread of these diseases. The discharge concentration of these chemicals should not cause receiving water toxicity if the use is consistent with product labels, USFDA regulations, and the permit requirement mandating Permittees to follow BMPs to dilute the treatment concentrations with other hatchery flows. The Department has determined that the use of BMPs will meet AKART for this pollutant.

Following the issuance of a previous Upland Fin-Fish Hatching and Rearing NPDES Waste Discharge General Permit, a document was developed entitled “Approval of Disease Control Chemical Use Under the Department’s General Permit for Upland Fin-Fish Hatching and Rearing Facilities.” This document authorized the use of non-emergency and emergency extra-label drug and chemical use without the prior approval of the Department. In October 1995, Chapter 173-221A WAC was amended to specifically allow the extra-label use of disease control drugs and chemicals if the drugs and chemicals are administered by, or under, the supervision of a licensed veterinarian and approved in advance by the Department.

This permit has adopted the conditions of previous general permits and incorporated them into S4.D. The Department recognizes that there are many situations where extra-label disease control drug and chemical use could occur with little reasonable potential to impact water quality. The Department also recognizes that an epizootic disease outbreak may require extraordinary measures to save the fish. Epizootic disease outbreaks may require the extra-label use of a drug or chemical or the use of a drug or chemical that is not approved by the USFDA or USEPA. The Department will require 24-hours of prior notification for emergency drug and chemical use. The method and quantity of disposed disease control drugs and chemicals must be detailed in the facility’s operational log.

WHOLE EFFLUENT TOXICITY

The Water Quality Standards for Surface Waters require that the effluent not cause toxic effects in the receiving waters. Many toxic pollutants cannot be detected by commonly available detection methods. However, toxicity can be measured directly by exposing living organisms to the wastewater in laboratory tests and measuring the response of the organisms. Toxicity tests measure the aggregate toxicity of the whole effluent, and therefore this approach is called whole effluent toxicity (WET) testing.

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Toxicity caused by unidentified pollutants is not expected in the effluent from this discharge as determined by the screening criteria given in Chapter 173-205 WAC. Therefore, no whole effluent toxicity testing is required in this permit. The Department may require effluent toxicity testing in the future if it receives information that toxicity may be present in this effluent.

HUMAN HEALTH

Washington's water quality standards now include 91 numeric health-based criteria that must be considered in NPDES permits. These criteria were promulgated for the state by the U.S. EPA in its National Toxics Rule (Federal Register, Volume 57, No. 246, Tuesday, December 22, 1992).

The Department has determined that the applicant's discharge does not contain chemicals of concern based on existing data or knowledge. The discharge will be re-evaluated for impacts to human health at the next permit reissuance.

SEDIMENT QUALITY

The Department has promulgated aquatic sediment standards (Chapter 173-204 WAC) to protect aquatic biota and human health. These standards state that the Department may require Permittees to evaluate the potential for the discharge to cause a violation of applicable standards (WAC 173-204-400).

The Department has determined through a review of the discharger characteristics and effluent characteristics that this discharge has no reasonable potential to violate the Sediment Management Standards.

GROUND WATER QUALITY LIMITATIONS

The Department has promulgated Ground Water Quality Standards (Chapter 173-200 WAC) to protect beneficial uses of ground water. Permits issued by the Department shall be conditioned in such a manner so as not to allow violations of those standards (WAC 173-200-100).

This Permittee has no discharge to ground and therefore no limitations are required based on potential effects to ground water.

COMPARISON OF EFFLUENT LIMITS WITH THE PREVIOUS UPLAND FIN-FISH HATCHING AND REARING GENERAL PERMIT ISSUED APRIL 17, 2000

The effluent limits in this permit are the exact same as in the previous Upland Fin-Fish Hatching and Rearing General Permit except that BOD₅ and NH₃ limitations have been added and the discharge of total residual chlorine has been prohibited to ensure compliance with the **Puyallup River TMDL for BOD, NH₃, and total residual chlorine**. Also pH limitations have been placed to ensure compliance of pH water quality standards would be achieved as a result of this facility's discharge. pH is listed in Category 5 – Requires a TMDL in the immediate vicinity of the facility's discharge locations in the 2002/2004 303(d) list.

MONITORING REQUIREMENTS

Monitoring, recording, and reporting are required (WAC 173-220-210 and 40 CFR 122.41) to verify that the treatment process is functioning correctly and the effluent limitations are being achieved.

The monitoring requirements in this permit are the same as in the Upland Fin-Fish Hatching and Rearing NPDES Waste Discharge General Permit except for BOD₅, NH₃, and pH. Monitoring for BOD₅ and NH₃ is required for the effluent to monitor compliance with the **Puyallup River TMDL for BOD, NH₃, and**

total residual chlorine. Monitoring for pH in the influent and effluent of the facility is being required to further characterize the influent and effluent since the receiving water is listed in Category 5 – Requires a TMDL in the 2002/2004 303(d) List.

The monitoring schedule is detailed in Special Condition S2. Specified monitoring frequencies take into account the quantity and variability of the discharge, the treatment method, past compliance, significance of pollutants, and cost of monitoring.

LAB ACCREDITATION

With the exception of flow, temperature, settleable solids, pH, turbidity, and internal process control parameters (specified in the permit as being exempt from the accredited lab requirements) the permit requires all monitoring data to be prepared by a laboratory registered or accredited under the provisions of Chapter 173-50 WAC, *Accreditation of Environmental Laboratories*.

OTHER PERMIT CONDITIONS

REPORTING AND RECORDKEEPING

Special Condition S3 is based on the authority to specify any appropriate reporting and recordkeeping requirements to prevent and control waste discharges (WAC 173-220-210).

GENERAL CONDITIONS

General Conditions are based directly on state and federal law and regulations and have been standardized for all individual industrial NPDES permits issued by the Department.

PERMIT ISSUANCE PROCEDURES

PERMIT MODIFICATIONS

The Department may modify this permit to impose numerical limitations, if necessary to meet Water Quality Standards for Surface Waters, Sediment Quality Standards, or Water Quality Standards for Ground Waters, based on new information obtained from sources such as inspections, effluent monitoring, outfall studies, and effluent mixing studies.

The Department may also modify this permit as a result of new or amended state or federal regulations.

RECOMMENDATION FOR PERMIT ISSUANCE

This proposed permit meets all statutory requirements for authorizing a wastewater discharge, including those limitations and conditions believed necessary to control toxics, protect human health, aquatic life, and the beneficial uses of waters of the state of Washington. The Department proposes that this permit be issued for five years.

REFERENCES FOR TEXT AND APPENDICES

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1994. Addendum to the 1993 Puyallup River TMDL Report. Memorandum from Greg Pelletier to Bill Backous dated July 22, 1994.

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1993. Puyallup River Total Maximum Daily Load for Biochemical Oxygen Demand, Ammonia, and Residual Chlorine. Pub. No. 96-326.

Washington State Department of Ecology.

Laws and Regulations(<http://www.ecy.wa.gov/laws-rules/index.html>)

Permit and Wastewater Related Information
(<http://www.ecy.wa.gov/programs/wq/wastewater/index.html>)

Wright, R.M., and A.J. McDonnell.

1979. In-stream Deoxygenation Rate Prediction. Journal Environmental Engineering Division, ASCE. 105(E2). (Cited in EPA 1985 op.cit.)

APPENDIX A - LOW REGULATORY PRIORITY AQUACULTURE DRUGS

The following compounds have undergone review by the Food and Drug Administration and have been determined to be new animal drugs of low regulatory priority.

ACETIC ACID - 1000 to 2000 ppm dip for 1 to 10 minutes as a parasiticide for fish.

CALCIUM CHLORIDE - Used to increase water calcium concentration to ensure proper egg hardening. Dosages used would be those necessary to raise calcium concentration to 10-20 ppm CaCO_3 .

- Up to 150 ppm indefinitely to increase the hardness of water for holding and transporting fish in order to enable fish to maintain osmotic balance.

CALCIUM OXIDE - Used as an external protozoacide for fingerlings to adult fish at a concentration of 2000 mg/L for 5 seconds.

CARBON DIOXIDE GAS - For anesthetic purposes in cold, cool, and warm water fish.

FULLER'S EARTH - Used to reduce the adhesiveness of fish eggs to improve hatchability.

GARLIC (Whole Form) - Used for control of helminth and sea lice infestations of marine salmonids at all life stages.

HYDROGEN PEROXIDE - Used at 250-500 mg/L to control fungi on all species and life stages of fish, including eggs.

ICE - Used to reduce metabolic rate of fish during transport.

MAGNESIUM SULFATE - Used to treat external monogenic trematode infestations and external crustacean infestations in fish at all life stages. Used in all freshwater species. Fish are immersed in a 30,000 mg MgSO_4/L and 7000 mg NaCl/L solutions for 5 to 10 minutes.

ONION (Whole Form) - Used to treat external crustacean parasites, and to deter sea lice from infesting external surface of salmonids at all life stages.

PAPAIN - Use of a 0.2% solution in removing the gelatinous matrix of fish egg masses in order to improve hatchability and decrease the incidence of disease.

POTASSIUM CHLORIDE—Used as an aid in osmoregulation; relieves stress and prevents shock. Dosages used would be those necessary to increase chloride ion concentration to 10-2000 mg/L.

POVIDONE IODINE—100 ppm solution for 10 minutes as an egg surface disinfectant during and after water hardening.

SODIUM BICARBONATE—142 to 642 ppm for 5 minutes as a means of introducing carbon dioxide into the water to anesthetize fish.

SODIUM CHLORIDE—0.5% to 1.0% solution for an indefinite period as an osmoregulatory aid for the relief of stress and prevention of shock; and 3% solution for 20 to 30 minutes as a parasiticide.

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SODIUM SULFITE—15% solution for 5 to 8 minutes to treat eggs in order to improve their hatchability.

THIAMINE HYDROCHLORIDE – Used to prevent or treat thiamine deficiency in salmonids. Eggs are immersed in an aqueous solution of up to 100 ppm for up to four hours during water hardening. Sac fry are immersed in an aqueous solution of up to 1,000 ppm for up to one hour.

UREA and TANNIC ACID – Used to denature the adhesive component of fish eggs at concentrations of 15g urea and 20g NaCl/5 liters of water for approximately 6 minutes. These amounts will treat approximately 400,000 eggs.

APPENDIX B--PUBLIC INVOLVEMENT INFORMATION

The Department has tentatively determined to issue a permit to the applicant listed on page 1 of this fact sheet. The permit contains conditions and effluent limitations which are described in the rest of this fact sheet.

Public notice of application was published on February 19, 2005, and February 20, 2005, in the *Puyallup Herald* to inform the public that an application had been submitted and to invite comment on the issuance of this permit.

The Department will publish a Public Notice of Draft (PNOD) on _____, in the *Puyallup Herald* to inform the public that a draft permit and fact sheet are available for review. Interested persons are invited to submit written comments regarding the draft permit. The draft permit, fact sheet, and related documents are available for inspection and copying between the hours of 8:00 a.m. and 5:00 p.m. weekdays, by appointment, at the regional office listed below. Written comments should be mailed to:

Sherri Greenup
Water Quality Permit Coordinator
Department of Ecology
Southwest Regional Office
P.O. Box 47775
Olympia, WA 98504

Any interested party may comment on the draft permit or request a public hearing on this draft permit within the 30-day comment period to the address above. The request for a hearing shall indicate the interest of the party and reasons why the hearing is warranted. The Department will hold a hearing if it determines there is a significant public interest in the draft permit (WAC 173-220-090). Public notice regarding any hearing will be circulated at least 30 days in advance of the hearing. People expressing an interest in this permit will be mailed an individual notice of hearing (WAC 173-220-100).

Comments should reference specific text followed by proposed modification or concern when possible. Comments may address technical issues, accuracy and completeness of information, the scope of the facility's proposed coverage, adequacy of environmental protection, permit conditions, or any other concern that would result from issuance of this permit.

The Department will consider all comments received within 30 days from the date of public notice of draft indicated above, in formulating a final determination to issue, revise, or deny the permit. The Department's response to all significant comments is available upon request and will be mailed directly to people expressing an interest in this permit.

Further information may be obtained from the Department by telephone, (360) 407-6289, or by writing to the address listed above.

This permit and fact sheet were written by John Diamant, P.E.

APPENDIX C--GLOSSARY

Acute Toxicity--The lethal effect of a compound on an organism that occurs in a short period of time, usually 48 to 96 hours.

AKART-- An acronym for "all known, available, and reasonable methods of treatment".

Ambient Water Quality--The existing environmental condition of the water in a receiving water body.

Ammonia--Ammonia is produced by the breakdown of nitrogenous materials in wastewater. Ammonia is toxic to aquatic organisms, exerts an oxygen demand, and contributes to eutrophication. It also increases the amount of chlorine needed to disinfect wastewater.

Average Monthly Discharge Limitation --The average of the measured values obtained over a calendar month's time.

Best Management Practices (BMPs)--Schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural and/or managerial practices to prevent or reduce the pollution of waters of the State. BMPs include treatment systems, operating procedures, and practices to control: plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. BMPs may be further categorized as operational, source control, erosion and sediment control, and treatment BMPs.

BOD₅--Determining the Biochemical Oxygen Demand of an effluent is an indirect way of measuring the quantity of organic material present in an effluent that is utilized by bacteria. The BOD₅ is used in modeling to measure the reduction of dissolved oxygen in a receiving water after effluent is discharged. Stress caused by reduced dissolved oxygen levels makes organisms less competitive and less able to sustain their species in the aquatic environment. Although BOD is not a specific compound, it is defined as a conventional pollutant under the federal Clean Water Act.

Bypass--The intentional diversion of waste streams from any portion of a treatment facility.

Chlorine--Chlorine is used to disinfect wastewaters of pathogens harmful to human health. It is also extremely toxic to aquatic life.

Chronic Toxicity--The effect of a compound on an organism over a relatively long time, often 1/10 of an organism's lifespan or more. Chronic toxicity can measure survival, reproduction or growth rates, or other parameters to measure the toxic effects of a compound or combination of compounds.

Clean Water Act (CWA)--The Federal Water Pollution Control Act enacted by Public Law 92-500, as amended by Public Laws 95-217, 95-576, 96-483, 97-117; USC 1251 et seq.

Compliance Inspection - Without Sampling--A site visit for the purpose of determining the compliance of a facility with the terms and conditions of its permit or with applicable statutes and regulations.

Compliance Inspection - With Sampling--A site visit to accomplish the purpose of a Compliance Inspection - Without Sampling and as a minimum, sampling and analysis for all parameters with limits in the permit to ascertain compliance with those limits; and, for municipal facilities, sampling of influent to ascertain compliance with the 85 percent removal requirement. Additional sampling may be conducted.

Composite Sample--A mixture of grab samples collected at the same sampling point at different times, formed either by continuous sampling or by mixing discrete samples. May be "time-composite"(collected at constant time intervals) or "flow-proportional" (collected either as a constant sample volume at time intervals proportional to stream flow, or collected by increasing the volume of each aliquot as the flow increased while maintaining a constant time interval between the aliquots).

Construction Activity--Clearing, grading, excavation and any other activity which disturbs the surface of the land. Such activities may include road building, construction of residential houses, office buildings, or industrial buildings, and demolition activity.

Continuous Monitoring --Uninterrupted, unless otherwise noted in the permit.

Critical Condition--The time during which the combination of receiving water and waste discharge conditions have the highest potential for causing toxicity in the receiving water environment. This situation usually occurs when the flow within a water body is low, thus, its ability to dilute effluent is reduced.

Dilution Factor--A measure of the amount of mixing of effluent and receiving water that occurs at the boundary of the mixing zone. Expressed as the inverse of the percent effluent fraction e.g., a dilution factor of 10 means the effluent comprises 10% by volume and the receiving water 90%.

Engineering Report--A document which thoroughly examines the engineering and administrative aspects of a particular domestic or industrial wastewater facility. The report shall contain the appropriate information required in WAC 173-240-060 or 173-240-130.

Fecal Coliform Bacteria--Fecal coliform bacteria are used as indicators of pathogenic bacteria in the effluent that are harmful to humans. Pathogenic bacteria in wastewater discharges are controlled by disinfecting the wastewater. The presence of high numbers of fecal coliform bacteria in a water body can indicate the recent release of untreated wastewater and/or the presence of animal feces.

Grab Sample--A single sample or measurement taken at a specific time or over as short period of time as is feasible.

Industrial Wastewater--Water or liquid-carried waste from industrial or commercial processes, as distinct from domestic wastewater. These wastes may result from any process or activity of industry, manufacture, trade or business, from the development of any natural resource, or from animal operations such as feed lots, poultry houses, or dairies. The term includes contaminated storm water and, also, leachate from solid waste facilities.

Major Facility--A facility discharging to surface water with an EPA rating score of > 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

Maximum Daily Discharge Limitation--The highest allowable daily discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. The daily discharge is calculated as the average measurement of the pollutant over the day.

Method Detection Level (MDL)--The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is above zero and is determined from analysis of a sample in a given matrix containing the analyte.

Minor Facility--A facility discharging to surface water with an EPA rating score of < 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

Mixing Zone--An area that surrounds an effluent discharge within which water quality criteria may be exceeded. The area of the authorized mixing zone is specified in a facility's permit and follows procedures outlined in state regulations (Chapter 173-201A WAC).

National Pollutant Discharge Elimination System (NPDES)--The NPDES (Section 402 of the Clean Water Act) is the Federal wastewater permitting system for discharges to navigable waters of the United States. Many states, including the State of Washington, have been delegated the authority to issue these permits. NPDES permits issued by Washington State permit writers are joint NPDES/State permits issued under both State and Federal laws.

pH--The pH of a liquid measures its acidity or alkalinity. A pH of 7 is defined as neutral, and large variations above or below this value are considered harmful to most aquatic life.

Quantitation Level (QL)-- A calculated value five times the MDL (method detection level).

Responsible Corporate Officer-- A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or have gross annual sales or expenditures exceeding \$25 million (in second quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures (40 CFR 122.22).

Technology-based Effluent Limit--A permit limit that is based on the ability of a treatment method to reduce the pollutant.

Total Suspended Solids (TSS)--Total suspended solids is the particulate material in an effluent. Large quantities of TSS discharged to a receiving water may result in solids accumulation. Apart from any toxic effects attributable to substances leached out by water, suspended solids may kill fish, shellfish, and other aquatic organisms by causing abrasive injuries and by clogging the gills and respiratory passages of various aquatic fauna. Indirectly, suspended solids can screen out light and can promote and maintain the development of noxious conditions through oxygen depletion.

State Waters--Lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, and all other surface waters and watercourses within the jurisdiction of the state of Washington.

Stormwater--That portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, pipes, and other features of a storm water drainage system into a defined surface water body, or a constructed infiltration facility.

Upset--An exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the Permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, lack of preventative maintenance, or careless or improper operation.

Water Quality-based Effluent Limit--A limit on the concentration of an effluent parameter that is intended to prevent the concentration of that parameter from exceeding its water quality criterion after it is discharged into a receiving water.

APPENDIX D—TECHNICAL CALCULATIONS

Ammonia Reasonable Potential to Exceed Calculations (Using TSDCalc11.xls)

									CALCULATIONS									
				State Water Quality Standard		Max concentration at edge of...												
	Metal Criteria Translator as decimal	Metal Criteria Translator as decimal	Ambient Concentration (metals as dissolved)	Acute	Chronic	Acute Mixing Zone	Chronic Mixing Zone	LIMIT REQ'D?	Effluent percentile value		Max effluent conc. measured (metals as total recoverable)	Coeff Variation		# of samples	Multiplier	Acute Dil'n Factor	Chronic Dil'n Factor	
Parameter	Acute	Chronic	ug/L	ug/L	ug/L	ug/L	ug/L			Pn	ug/L	CV	s	n				COMMENTS
Ammonia (as N)			198	10392	2167	619.82	619.82	—	0.95	0.050	100	0.60	0.55	1	6.20	1	1	No mixing zone granted

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Ammonia Criteria Calculations (Using TSDCalc11.xls)

INPUT	
1. Ambient Temperature (deg C; 0<T<30)	11.7
2. Ambient pH (6.5<pH<9.0)	7.64
3. Acute TCAP (Salmonids present- 20; absent- 25)	20
4. Chronic TCAP (Salmonids present- 15; absent- 20)	15
OUTPUT	
1. Intermediate Calculations:	
Acute FT	1.78
Chronic FT	1.78
FPH	1.26
RATIO	15
pKa	9.67
Fraction Of Total Ammonia Present As Un-ionized	0.9172%
2. Un-ionized Ammonia Criteria	
Acute (1-hour) Un-ionized Ammonia Criterion (ug NH3/L)	116.0
Chronic (4-day) Un-ionized Ammonia Criterion (ug NH3/L)	24.2
3. Total Ammonia Criteria:	
Acute Total Ammonia Criterion (mg NH3+ NH4/L)	12.6
Chronic Total Ammonia Criterion (mg NH3+ NH4/L)	2.6
4. Total Ammonia Criteria expressed as Nitrogen:	
Acute Ammonia Criterion as mg N	10.392
Chronic Ammonia Criterion as N	2.167

APPENDIX E--RESPONSE TO COMMENTS